

$$7) 0 = 3x^2 - 10x - 8$$

$$0 = (3x + 2)(x - 4)$$

$$3x + 2 = 0$$

$$3x = -2$$

$$x = -\frac{2}{3}$$

$$x - 4 = 0$$

$$x = 4$$

$$\textcircled{8} \quad 2x^2 + 10x = -12$$

$+12 \quad +12$

$$2x^2 + 10x + 12 = 0$$

$$(2x+4)(x+3) = 0$$

$$\rightarrow 2(x^2 + 5x + 6) = 0$$

$$2(x+2)(x+3) = 0$$

$$x+2=0$$

$$\boxed{x = -2}$$


$$x+3=0$$

$$\boxed{x = -3}$$

$$\textcircled{9} -56 = x^2 + 15x$$

$$0 = x^2 + 15x + 56$$

$$0 = (x+7)(x+8)$$


$$x = -7$$


$$x = -8$$

More mixed practice

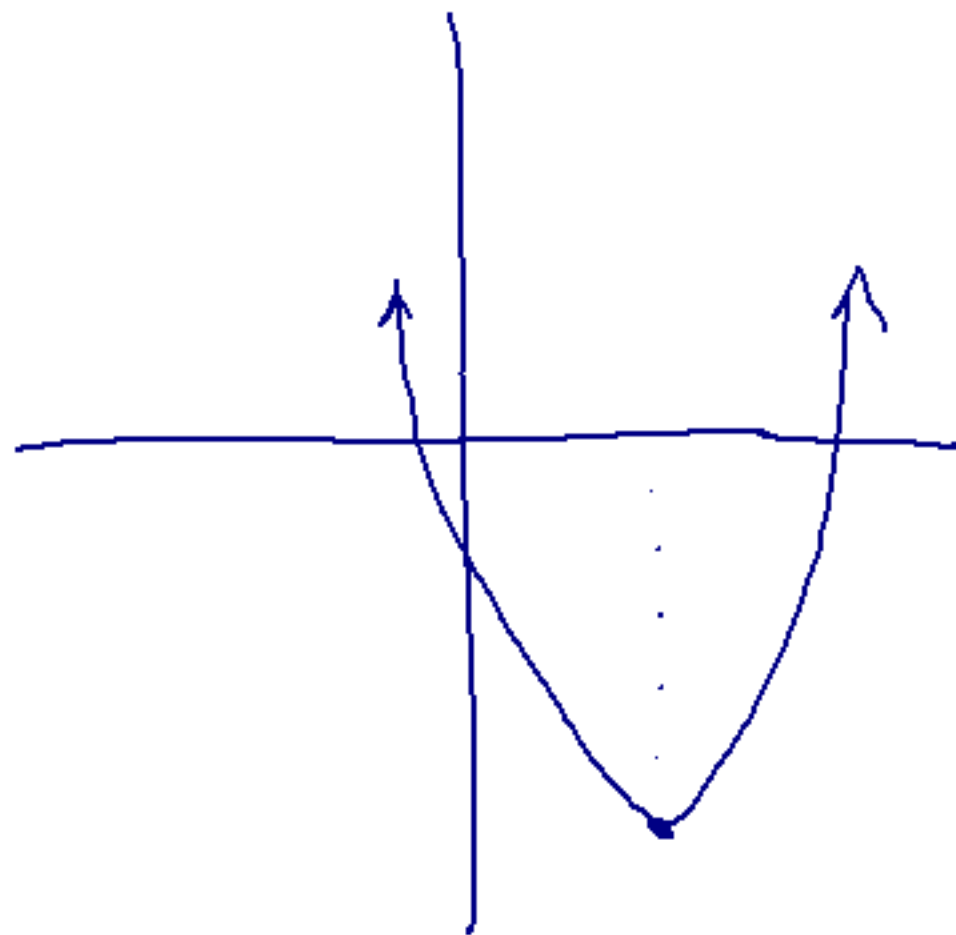
$$\textcircled{1} y = x^2 - 6x + 3$$

$$x = -b/2a = 6/2 = 3$$

$$y = (3)^2 - 6(3) + 3$$

$$y = -6$$

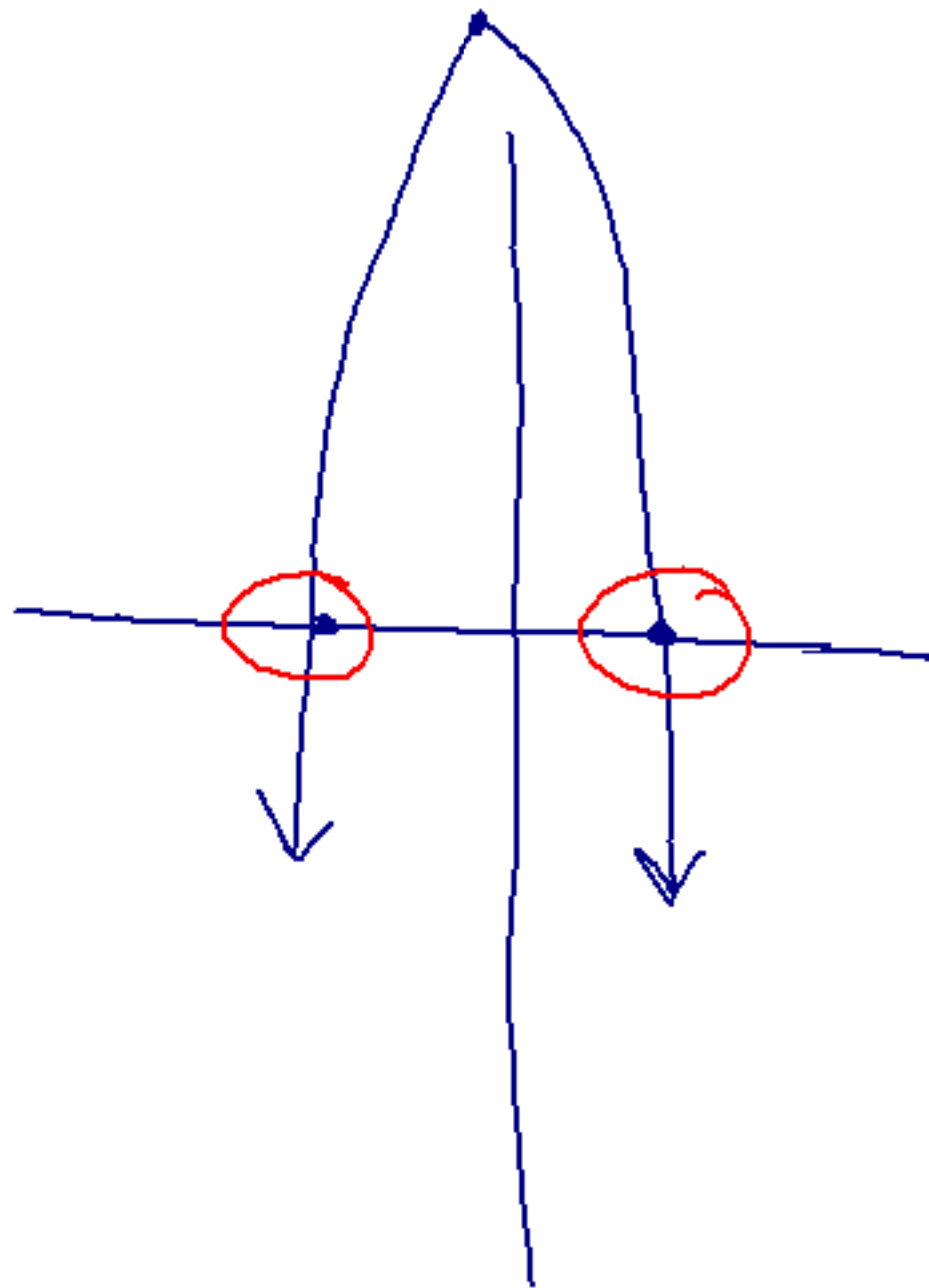
$$(3, -6)$$



$$\textcircled{2} \quad y = -2(x+3)(x-2)$$
$$x = \frac{-3+2}{2} = -\frac{1}{2}$$

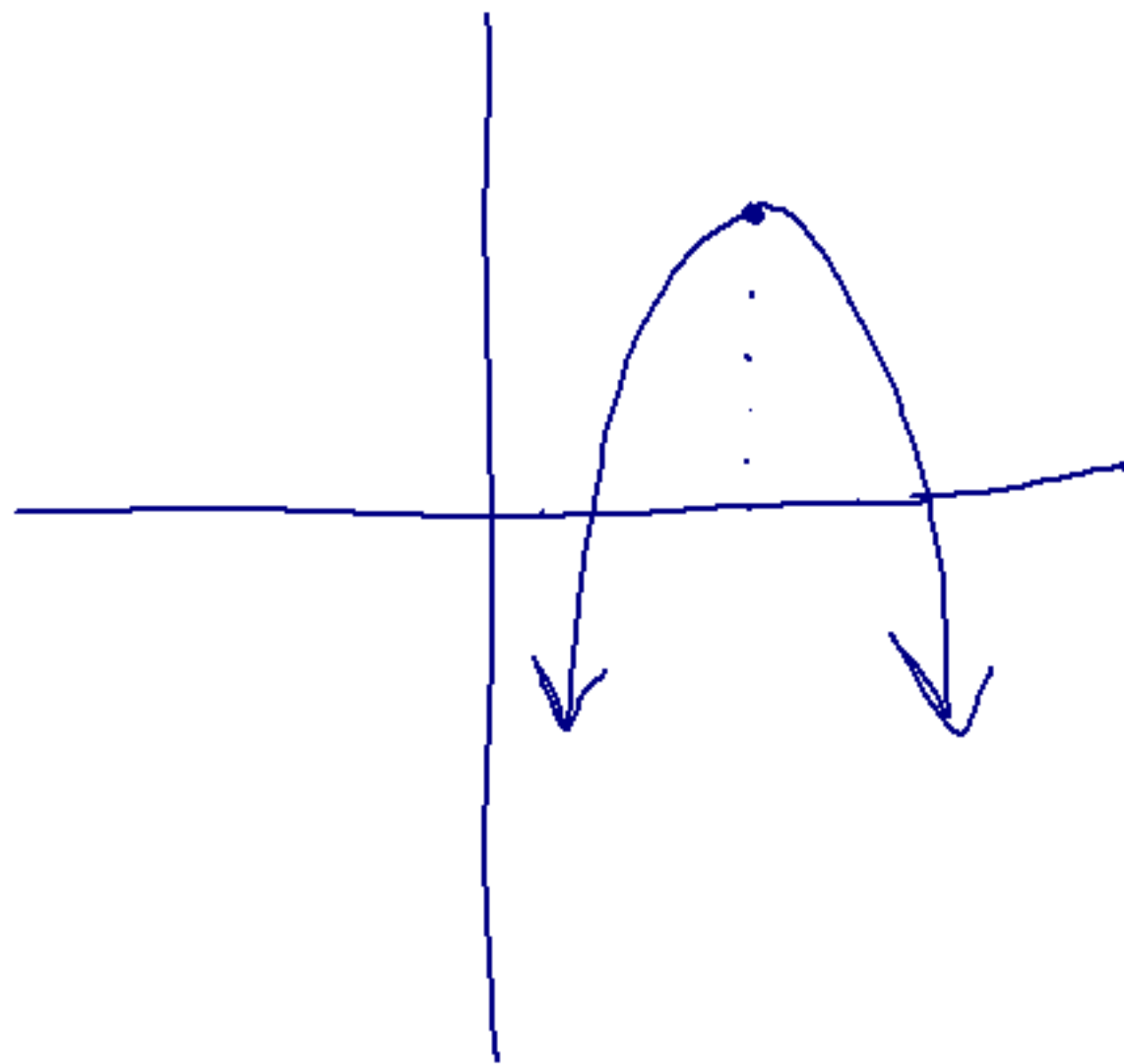
$$y = -2(-\frac{1}{2}+3)(-\frac{1}{2}-2)$$
$$y = 12.5$$

$$\boxed{(-\frac{1}{2}, 12.5)}$$

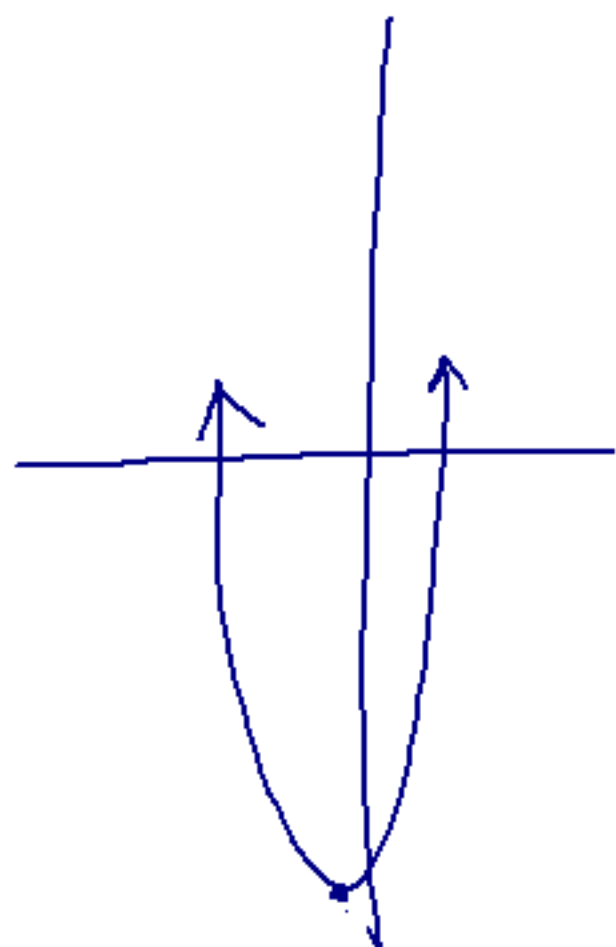


$$\textcircled{3} \quad y = -\frac{1}{2}(x-4)^2 + 5$$

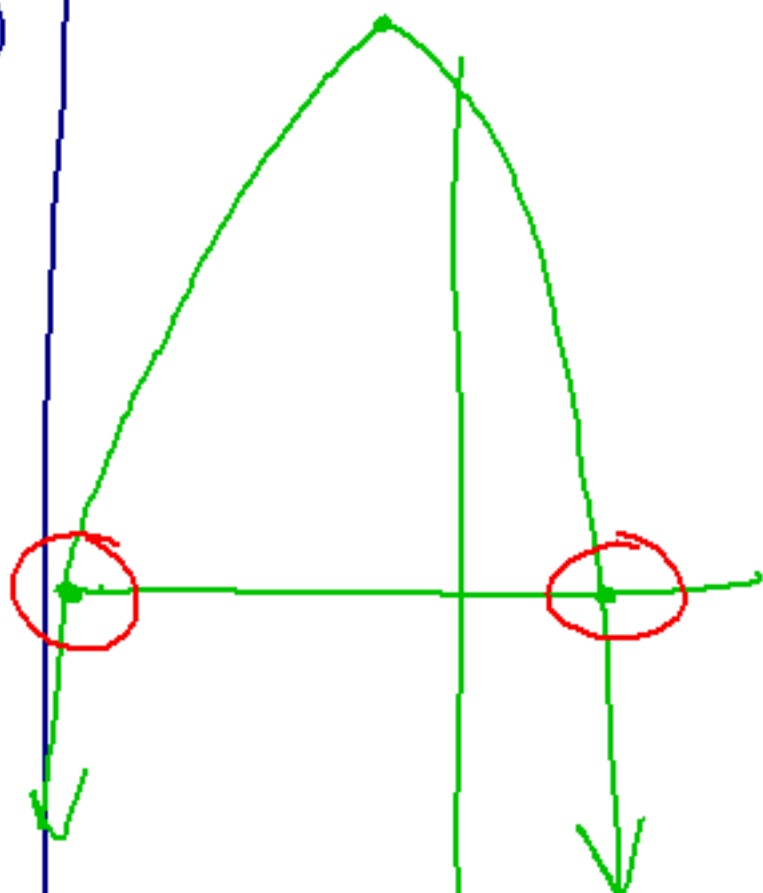
$(4, 5)$



④ vertex:
 $(-0.66, -10.33)$

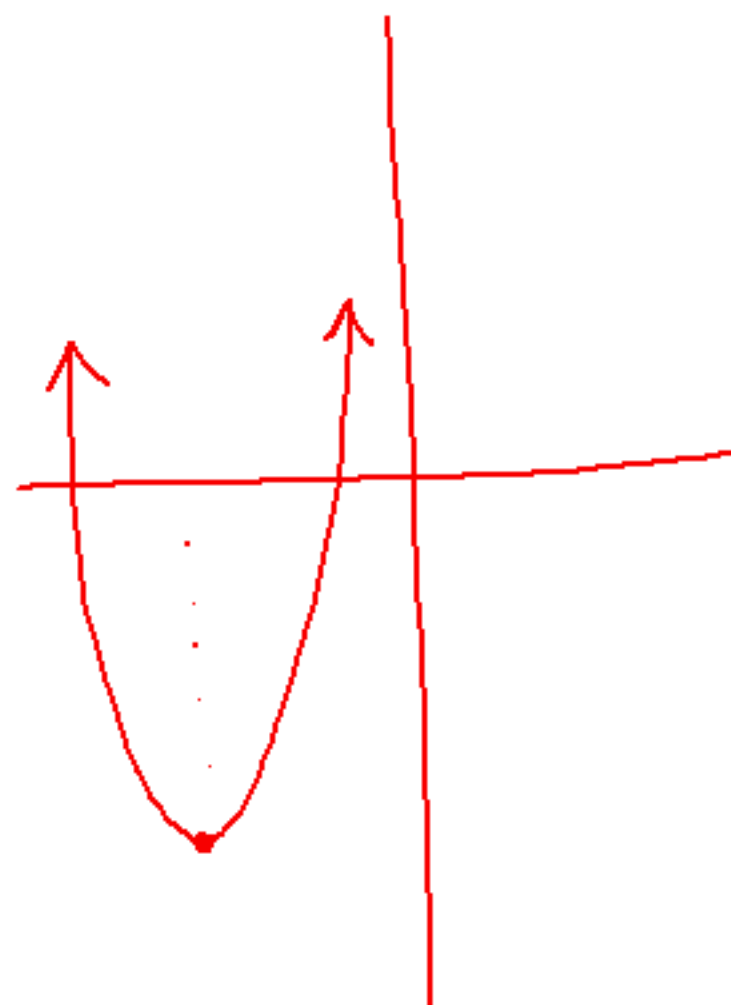


⑤ vertex:
 $(-3.5, 42.25)$



$$y = -(x-3)(x+10)$$

⑥ vertex:
 $(-5, -6)$



$$\textcircled{7} 0 = 2x^2 - 9x + 4$$

$$0 = (2x - 1)(x - 4)$$

$$2x - 1 = 0$$

$$2x = 1$$

$$x = \frac{1}{2}$$

$$x - 4 = 0$$

$$x = 4$$

$$\textcircled{8} 0 = x^2 - 7x - 30$$

$$0 = (x - 10)(x + 3)$$

$$x - 10 = 0$$

$$x = 10$$

$$x + 3 = 0$$

$$x = -3$$

$$\textcircled{9} \quad \begin{array}{c} -8 \\ +8 \end{array} = 3x^2 + 10x \quad \begin{array}{c} +8 \end{array}$$

$$0 = 3x^2 + 10x + 8$$

$$0 = (3x + 4)(x + 2)$$

$$3x + 4 = 0$$

$$3x = -4$$

$$x = -\frac{4}{3}$$

$$x + 2 = 0$$

$$x = -2$$

Solving $\sqrt{\quad}$

① Determine if solve by $\sqrt{\quad}$ both sides.

a) Possible if $\frac{X^2 = \#}{(\quad)^2 = \#}$.

$$\sqrt{X^2} = \sqrt{49}$$

$$X = 7, -7$$

$$(-7)^2 =$$

$$\sqrt{(x-2)^2} = \sqrt{49}$$

$$(x-2) = 7$$

$$\boxed{x=9}$$

$$(x-2) = -7$$

$$\boxed{x=-5}$$

$$\frac{3x^2=12}{\sqrt{x^2}=\sqrt{4}}$$

$$\boxed{x=\pm 2}$$

② on the left and # on other side.

③ $\sqrt{\quad}$ both sides.

a) $\pm \sqrt{\quad}$

$$\boxed{\sqrt{49} = \pm 7}$$

$$\textcircled{1} \sqrt{x^2} = \sqrt{36}$$

$$x = 6, -6$$

$$x = \pm 6$$

$$\textcircled{2} x^2 - \frac{9}{4} = 0$$

$$\sqrt{x^2} = \sqrt{\frac{9}{4}}$$

$$x = \pm \frac{3}{2}$$

$$x = \frac{3}{2}, -\frac{3}{2}$$

$$\textcircled{3} \quad \begin{array}{r} x^2 + 1 = 41 \\ -1 \quad \quad -1 \end{array}$$

$$\sqrt{x^2} = \sqrt{40}$$

$\begin{array}{cc} 4 & 10 \\ \hline 22 & 52 \end{array}$

$$x = \pm 2\sqrt{10}$$

$$\textcircled{4} \quad \frac{2(x+2)^2}{2} = \frac{200}{2}$$

$$\sqrt{(x+2)^2} = \sqrt{100}$$

$$x+2 = \pm 10$$

$$x+2=10$$

$$\boxed{x=8}$$

$$x+2=-10$$

$$\boxed{x=-12}$$

$$\textcircled{5} \left(2x^2 + \frac{1}{2}\right) - (40)^2 \rightarrow 4x^2 + 1 = 80$$

$$2x^2 = 39.5$$

$$\sqrt{x^2} = \sqrt{19.75}$$

$$x = \pm \sqrt{19.75}$$

$$x = \pm 4.44 \dots$$

$$\cancel{2} \frac{3x}{\cancel{2}} = 10 \cdot 2$$

$$3x = 20$$

$$\textcircled{6} \quad \cancel{\frac{1}{2}} (x-16)^2 = 10 \cdot 2$$

$$\cancel{\sqrt{(x-16)}} = \sqrt{20}$$

$$(x-16) = \pm \sqrt{20}$$



$$x-16 = \pm 2\sqrt{5}$$

$$x-16 = 2\sqrt{5}$$

$$x-16 = -2\sqrt{5}$$

$$\boxed{x = 16 + 2\sqrt{5}}$$

$$\boxed{x = 16 - 2\sqrt{5}}$$

$$\textcircled{7} \quad 2(a-6)^2 - 45 = 53$$

$+45 \quad +45$

$$\frac{2(a-6)^2}{2} = \frac{98}{2}$$

$$\sqrt{(a-6)^2} = \sqrt{49}$$

$$a-6 = \pm 7$$

$$a-6 = 7$$

$$\boxed{a=13}$$

$$a-6 = -7$$

$$\boxed{a=-1}$$

$$1) \sqrt{x^2} = \sqrt{121}$$

$$x = \pm 11$$

$$y = \underline{\hspace{2cm}}$$

$$x^2 = 121$$

$$-x^2 \quad -x^2$$

$$0 = -x^2 + 121$$

$$y = -x^2 + 121$$

$$\textcircled{5} \frac{4(x+1)^2}{4} = \frac{100}{4}$$

$$\sqrt{(x+1)^2} = \sqrt{25}$$

$$x+1 = \pm 5$$

$$x+1 = 5$$

$$\boxed{x = 4}$$

$$x+1 = -5$$

$$\boxed{x = -6}$$

$$4(x+1)^2 = 100$$

$$\quad -100 \quad -100$$

$$4(x+1)^2 - 100 = \cancel{0}^y$$

$$\textcircled{2} \quad 3x^2 = 108$$

$$\cancel{\sqrt{x^2}} = \sqrt{36}$$

$$x = \pm 6$$

$$\textcircled{3} \quad -x^2 - 12 = -87$$

$$-x^2 = -75$$

$$\cancel{\sqrt{x^2}} = \sqrt{75}$$

$$x = \pm 5\sqrt{3}$$

$$x = \pm \sqrt{75}$$

$$\textcircled{4} \frac{V^2}{25} - 1 = 11$$

+1 +1

~~$$\frac{V^2}{25} = 12 \cdot 25$$~~

~~$$\sqrt{V^2} = \sqrt{3000}$$~~

$$V = \pm \sqrt{3000}$$

$$V = \pm 10\sqrt{3}$$

3 100
10 10

~~$$\textcircled{6} \frac{5(x-7)^2}{5} = \frac{135}{5}$$~~

~~$$\sqrt{(x-7)^2} = \sqrt{27}$$~~

~~$$x-7 = \pm \sqrt{27} = 3\sqrt{3}$$~~

~~$$x-7 = 3\sqrt{3}$$~~

~~$$x = 7 + 3\sqrt{3}$$~~

~~$$x-7 = -3\sqrt{3}$$~~

~~$$x = 7 - 3\sqrt{3}$$~~

